

Patent  
Attorney's Docket No. 027500-690

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Reissue Patent Application of

) **VIA HAND-CARRY**

U.S. Patent No. 5,088,108  
UDDENFELDT et al.

) Group Art Unit: 2603

Serial No.: 08/136,760

) Examiner: B. Safourek

Filed: October 15, 1993

)

For: CELLULAR DIGITAL MOBILE  
RADIO SYSTEM AND METHOD  
OF TRANSMITTING INFORMATION  
IN A DIGITAL CELLULAR  
MOBILE RADIO SYSTEM

RECEIVED  
OCT 30 96  
GROUP 2600

**SUPPLEMENTAL RESPONSE**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Further to our Supplemental Amendment which was filed on October 15, 1996  
in response to the Office Action dated June 13, 1996, enclosed please find the  
executed Supplemental Declaration in Support of Reissue Application in connection  
with the subject application.

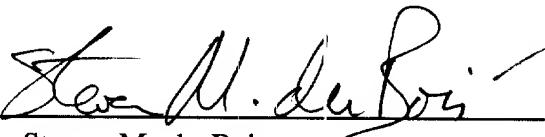
Application Serial No. 08/136,760  
Attorney's Docket No. 027500-690

If the Examiner has any questions with regard to the foregoing or the application in general, he is urged to contact the undersigned at (703) 836-6642.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By:



Steven M. du Bois  
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Date: October 30, 1996

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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**SUPPLEMENTAL DECLARATION IN SUPPORT OF REISSUE APPLICATION**

Honorable Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

This Declaration is supplemental to the Declarations filed on October 15, 1993 and  
on February 8, 1996.

We, Jan E. Uddenfeldt and Alex K. Raith, hereby supplementally declare as  
follows:

- (1) We are citizens of Sweden, having a post office address of c/o  
Telefonaktiebolaget L M Ericsson, S-126 25, Stockholm, Sweden.
- (2) We believe that we are the original, first inventors of the invention  
described and claimed in the United States Patent No. 5,088,108 and in the specification  
and the claims of the Reissue Application filed and proposed amendments made thereto.

(3) We have reviewed and understand the contents of the specification and the claims of the Reissue Application and proposed amendments made thereto.

(4) We hereby claim the benefit of foreign priority under 35 U.S.C. § 119 with respect to Swedish Patent Application No. 8800698, filed on February 29, 1988.

(5) We acknowledge the duty to disclose information that we are aware of which is material to the examination of this Reissue Application in accordance with 37 C.F.R. § 1.56(a).

(6) We verily believe U.S. Patent No. 5,088,108 to be partially inoperative by reason of our having claimed less than we had the right to claim in said Letters Patent. The specific inoperability of the patent is discussed below in more detail relative to the newly added and amended claims which broaden the scope of protection for the present invention.

(7) Claim 10 has been amended, at lines 7, 10, 11 and 17, to provide proper antecedence by consistently referring to --modulated-- or --modulating-- rather than "encoded" or "encoding", respectively. This inconsistency was discovered by Applicants' counsel upon a more intensive study of claim 10 in response to the Official Action dated 6/13/96 and was apparently caused by an oversight by the individuals prosecuting the application originally.

(8) Claim 13 has been amended, at lines 5, 8, 9 and 13, to provide proper antecedence by consistently referring to --modulated--, --modulating--, or --modulation--, rather than "encoded" or "encoding". This inconsistency was discovered by Applicants'

representatives upon a more intensive study of claim 13 in response to the Official Action dated 6/13/96 and was apparently caused by an oversight by Applicants' counsel.

(9) Claim 14 has been amended, at line 11, to provide proper antecedence by consistently referring to --modulating-- rather than "encoding". This inconsistency was discovered by Applicants' representatives upon a more intensive study of claim 14 in response to the Official Action dated 6/13/96 and was apparently caused by an oversight by Applicants' counsel.

(10) New claim 21 is a dependent claim which further describes a feature set forth in claim 1. Claim 21 recites that the reconstructing means of claim 1 includes an adaptive equalizer. A claim specifying an exemplary "means for reconstructing" in claim 1 was not presented in the original application and, as a result, it is believed that the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "an adaptive equalizer" was not specifically claimed in the original patent, as a dependent claim, or otherwise, although clearly supported in the patent specification at, for example, column 2, lines 56 through 61. Instead, claim 1 in the original patent only specified "means for reconstructing". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was an error because it could be argued that means-plus-function language of the original claim 1 could lead to unduly narrow interpretation of the scope of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of the

individuals who originally prosecuted the application to appreciate the full scope of the invention.

(11) New claim 22 is a dependent claim which further describes a feature set forth in claim 10. Claim 22 recites that the reconstructing means of claim 10 includes an adaptive equalizer. A claim specifying a "means for reconstructing" in claim 10 was not presented in the original application and, thus, it is believed that the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "an adaptive equalizer" was not specifically claimed in the original patent, as a dependent claim, or otherwise, although clearly supported in the patent specification at, for example, column 2, lines 56 through 61. Instead, claim 10 in the original patent only specified "means for reconstructing". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was in error because it could be argued that the means-plus-function language of claim 10 could lead to unduly narrow interpretation of the scope of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(12) New claim 23 is a dependent claim which further describes a feature set forth in claim 13. Claim 23 recites that the "means for reconstructing" of claim 13 includes an adaptive equalizer. A claim specifying a "means for reconstructing" in claim 13 has not, as yet, been presented and, thus, it is believed that the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "an adaptive

"equalizer" has not been specifically claimed, as a means for reconstructing, or otherwise, although clearly supported in the patent specification at, for example, column 2, lines 56 through 61. Applicants' counsel determined that claiming the reconstructing element only by use of "means for" language was in error because it could be argued that the means-plus-function language of claim 13 could lead to unduly narrow interpretation of the scope of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of Applicants' counsel to appreciate the full scope of the invention.

(13) New claim 24 is a dependent claim which further describes a feature set forth in claim 14. Claim 24 recites that the "means for reconstructing" of claim 14 includes an adaptive equalizer. A claim specifying a "means for reconstructing" in claim 14 has not, as yet, been presented and, thus, it is believed that the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "an adaptive equalizer" has not been specifically claimed, as a dependent claim, or otherwise, although clearly supported in the patent specification at, for example, column 2, lines 56 through 61. Applicants' counsel determined that claiming the reconstructing element only by use of "means for" language was in error because it could be argued that the means-plus-function language of claim 13 could lead to unduly narrow interpretation of the scope of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure Applicants' counsel appreciate the full scope of the invention..

(14) New claim 25 is a dependent claim which further describe features set forth in claim 18. Claim 25 recites that the "means for reconstructing" of claim 18 is an adaptive equalizer. A claim specifying a "means for reconstructing" in claim 18 has not, as yet, been presented and, thus, it is believed that the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "an adaptive equalizer" has not been specifically claimed, as a dependent claim, or otherwise, although clearly supported in the patent specification at, for example, column 2, lines 56 through 61. Applicants' counsel determined that claiming the reconstructing element only by use of "means for" language was in error because it could be argued that the means-plus-function language of claim 18 could lead to unduly narrow interpretation of the scope of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of Applicants' counsel to appreciate the full scope of the invention.

(15) New independent claim 26 is substantially similar to original claim 10 and recites a cellular mobile radio system for communicating message information within a geographic area that is divided into communication cells. The cellular mobile radio system includes a plurality of base stations associated with the cells, at least one of which cells has at least two base stations associated therewith which are located a distance from one another to transmit respective radio signals into the cell. The signals are digitally modulated with substantially the same message information and are transmitted at the same frequency and substantially simultaneously with one another into the cell. Each

digitally modulating" and "means for reconstructing". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was in error because it could be argued that the means-plus-function language of the independent claim of the original application could unduly constrain interpretation of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(17) New claim 27 is a dependent claim which further describe features set forth in claim 26. Claim 27 is analogous to claim 11 and recites that the "time interval is a few times greater than said propagation time". This description of the modulation time interval was not recited in the original patent claims. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993, and during a review of the patent claims by Applicants' counsel upon a more intense study of the claims in response to the Office Action of June 13, 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(18) New claim 28 is analogous to claim 12 and recites that the "at least two base stations associated with a cell are both located within said at least one cell". None of the original patent claims, specified the location of the at least two base stations in this manner. Accordingly, this claim is presented to correct the error that a claim of this scope was not, as yet, presented and, as a result, the assignee and inventors claimed less

base station is defined as including a transmitter that digitally modulates the radio signals with message information, wherein the modulating is carried out with modulation time intervals which are within a time interval related to the time required for radio signals to propagate a distance corresponding to the greatest transmitting distance between the two base stations associated with the cell. Each of a plurality of mobile stations also is defined as including a receiver that reconstructs the digital modulating of plural corresponding radio signals respectively received over the same frequency range during a reception time interval from the two base stations associated with the cell, which reception time interval is at least as long as the time required for radio signals to propagate a distance corresponding to the greatest transmitting distance between the two base stations associated with the cell.

(16) Claim 26 has been presented to correct the error that a claim of its scope, which is devoid of means-plus-function language, was not presented in the original application. As a result, the assignee and inventors had claimed less than they had the right to claim in view of the uncertainty involved in the interpretation of means-plus-function claim language. Furthermore, the recitation of "a transmitter that digitally modulates" was not specifically claimed in the original patent, although it is clearly supported in the patent specification at, for example, column 4, lines 21 through 30. In addition, the recitation of "a receiver that reconstructs the digital modulation" was not specifically claimed in the original patent or otherwise, even though it finds clear support in the patent specification at, for example, column 9, lines 21 through 26. Instead, claim 10 in the original patent, which is analogous to claim 26, only specified "means for

than they had the right to claim. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993, and during a review of the patent claims by Applicants' counsel upon a more intensive study of the claims in response to the Office Action of June 13, 1996. The error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(19) New independent claim 29 is substantially similar to claim 13 and recites a cellular mobile radio system for communicating message information within a geographic area that is divided into communication cells. The cellular mobile radio system includes a plurality of base stations for transmitting radio signals into a cell, which signals are digitally modulated with substantially the same message information, and transmitted at the same frequency substantially simultaneously with one another. The claim also recites that each base station includes a transmitter that digitally modulates the radio signals with message information, which modulating is carried out with modulation time intervals which are at most a few times greater than a time required for radio signals to propagate a distance corresponding to a diameter of said cell. Further defined are a plurality of mobile stations each having a receiver that reconstructs the digital modulating of plural corresponding radio signals respectively received over the same frequency during a reception time interval from the plurality of base stations, the reception time interval being at least as long as the time required for radio signals to propagate a distance corresponding to the diameter of the cell.

(20) Claim 29 has been presented to correct the error that a claim devoid of means-plus-function language was not presented in the original application. As a result, the assignee and inventors may have claimed less than they had the right to claim in view of the present legal uncertainty in the interpretation of means-plus-function claim language. Furthermore, the recitation of modulating with modulation time intervals "which are at most several times greater than a time required for audio signals to propagate a distance corresponding to a diameter of said cell" was not specifically claimed in the original patent, although it is clearly supported in the patent specification at column 10, lines 10 and 11. Instead, claims in the original patent only specified modulation time intervals "which are shorter than the time required for radio signals to propagate a distance which is as long as a greatest transmitting distance between two base station transmitters assigned to one cell within said geographic area" (claims 1 and 6) or "related to the time required for audio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with one cell in said system" (claim 10). This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993, and during a review of the pending claims by Applicants' counsel upon a more intense study of the claims in response to the Office Action of June 13, 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(21) Claim 29 also has been presented to correct the error that a claim, similar in scope to claim 13, but devoid of means-plus-function language has not, as yet, been

presented. As a result, the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "a transmitter that digitally modulates" was not specifically claimed in the original patent, although it is clearly supported in the patent specification at, for example, column 4, lines 21 through 30. In addition, the recitation of "a receiver that reconstructs the digital modulation" was not specifically claimed in the original patent even though it finds clear support in the patent specification at, for example, column 9, lines 21 through 26. Instead, claim 13 only specified "means for digitally modulating" and "means for reconstructing". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was in error because it could be argued that the means-plus-function language of the independent claim of the original application could unduly constrain interpretation of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of Applicants' counsel to appreciate the full scope of the invention.

(22) New independent claim 30 is substantially similar to claim 14 and recites a cellular mobile radio system for communicating message information and having a plurality of cells. The cellular mobile radio system according to claim 30 includes a first base station for transmitting a first signal having message information into a cell, a second base station for transmitting a second signal having the message information into the cell, a mobile station in the cell having a receiver that receives said first and second signals, wherein the first and second signals are received with a propagation delay therebetween, and wherein both of the first and second base stations include a transmitter

that modulates the first and second signals, respectively, with the message information using a modulation time interval which is no longer than a few multiples of the propagation delay. The claim further defines that the mobile station receiver reconstructs the first and second signals during a reception time interval which is at least as long as the propagation delay.

(23) Claim 30 has been presented to correct the error that a claim of its scope has not, as yet, been presented and, as a result, the assignee and inventors claimed less than they have the right to claim. For example, the recitation of modulating the first and second signals with the message information using a modulation time interval "which is no longer than a few multiples of said propagation delay" was not specifically claimed in the original patent although it is supported in the patent specification at, for example, column 10, lines 10 and 11. Claims in the original patent specified modulation time intervals "which are shorter than the time required for radio signals to propagate a distance which is as long as a greatest transmitting distance between two base station transmitters assigned to one cell within said geographic area" (claims 1 and 6) or "related to the time required for audio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with one cell in said system" (claim 10). This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993, and during a review of the pending claims by Applicants' counsel upon a more intense study of the claims in response to the Official Action dated June 13, 1996. This error was apparently caused by

a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(24) Claim 30 also has been presented to correct the error that a claim, similar in scope to claim 14, but devoid of means-plus-function language, has not as yet been presented. Thus, the assignee and inventors might have claimed less than they had the right to claim. In particular, the recitation of "a receiver that receives" and "reconstructs", and "a transmitter that modulates" were not specifically claimed previously, although clearly supported in the patent specification at column 4, lines 21 through 30 and at column 9, lines 21 through 26, respectively. Instead, claim 14, which is analogous to claim 30, only specified "means for receiving", "means for modulating" and "means for reconstructing". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was in error because it could be argued that the means-plus-function language of the independent claim of the original application could unduly constrain construction of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(25) Claim 31, which is analogous to claim 15, further describes features set forth in claim 30. Claim 31 recites that the time interval of claim 30 is "less than to a few times greater" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. The modulation

time interval was not originally claimed using this language. Hence, claim 31 is believed to be a broader recitation of the invention in the sense that it recites subject matter disclosed in the original specification that was not claimed in the original patent. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993, and during a review of the patent claims by Applicants' counsel upon a more intense study of the claims in response to the Office Action of June 13, 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(26) Claim 32, which is analogous to claim 16, further describes features set forth in claim 30. Claim 16 recites a time interval "no longer" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. Claim 32 provides the original language of claim 10, but depending from claim 30. Hence, claim 32 further points out that claim 30 is a broader recitation of the invention than that of original claim 10. The error of not claiming the modulation time interval sufficiently broadly was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(27) Claim 33 is analogous to claim 17 and recites a time interval "a few times greater" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. This claim provides another example of what is meant by the general phrase used in claim 30. The error of

not claiming the modulation time interval sufficiently broadly was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(28) New independent claim 34 is substantially similar to claim 18, and recites a cellular mobile radio system for communicating message information across an area of coverage. The recited cellular mobile radio system comprises a plurality of cells, each of the plurality of cells representing a geographic division of said area of coverage; a first base station for transmitting a first signal including message information into at least one of the plurality of cells, the first base station including a transmitter that modulates a radio carrier with the message information; a second base station for transmitting a second signal, including substantially the same message information as transmitted by the first base station, into at least one of the plurality of cells, the second base station including a transmitter that modulates the radio carrier with substantially the same message information; and at least one mobile station located within at least one of the plurality of the cells wherein the first and the second signals are received by the mobile station with a time shift therebetween wherein the time shift arises from a difference in a first radio propagation delay between the one mobile station and the first base station and a second propagation delay between the one mobile station and the second base station during a reception time interval, the time shift being in the range of less than to a few times greater than said difference in radio propagation delays, the one mobile station further including a receiver that recovers the message information from the first and the

second signals during a reception time interval which reception time interval is greater than the time shift.

(29) Claim 34 has been presented to correct the error that a claim of its scope has not, as yet, been presented and, as a result, the assignee and inventors claimed less than they have the right to claim. Specifically, the previously presented claims did not refer to a mobile station wherein the first and the second signals are received by the mobile station with a time shift therebetween wherein the time shift arises from a difference in a first radio propagation delay between the one mobile station and the first base station and a second propagation delay between the one mobile station and the second base station during a reception time interval, the time shift being in the range of less than to a few times greater than said difference in radio propagation delays, the one mobile station further including means for recovering the message information from the first and the second signals during a reception time interval which reception time interval is greater than the time shift, without also discussing other features, such as the modulation time interval employed by the base stations. Hence, claim 34 is believed to be broader than the previously filed claims. The original patent is also submitted to be partially inoperative for failing to include a claim of this scope. This error was discovered during a review of the patent claims by a member of the assignee's patent department after the Official Action dated August 8, 1995 and was caused by a failure of the individuals who prosecuted the original application to appreciate the full scope of the invention.

(30) Claim 34 also has been presented to correct the error that a claim, similar in scope to claim 18, but devoid of means-plus-function language has not, as yet, been presented. Thus, the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of first and second base stations transmitters that modulate were not specifically claimed previously, although clearly supported in the patent specification in, for example, Figure 2. Instead, claim 18, which is analogous to claim 34, only specified a first and a second base station, each of which includes "means for modulating" and at least one mobile station that includes a "means for recovering". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was in error because it could be argued that the means-plus-function language of the claim could unduly constrain the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(31) New claims 35 and 36 are analogous to claims 19 and 20, respectively. Claim 35 is a dependent claim which further describes features set forth in claim 34. Claim 35 recites that the time shift is intentionally introduced in the transmission of the first signal and the second signal. Claim 36 is dependent on claim 34 and recites that the first and second base stations include a time measurement unit that shifts the transmission times of the first and the second signals. These claims are provided to correct the error that claims of this scope have not yet been presented. Consequently, the assignee and

inventors have heretofore claimed less than they have the right to. This error was discovered during a review of the patent claims by a member of the assignee's patent department after review of the Office Action dated June 13, 1996, and was caused by a failure of Applicants' representatives to appreciate the full scope of the invention.

(32) Each of the foregoing errors arose without any deceptive intention on the part of the undersigned.

(33) The undersigned declare further that all statements made herein are of our own knowledge and are true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

DATE: Oct 28, 96

Jan E. Uddenfeldt  
Alex K. Raith  
Alex K. Raith

DATE: Oct 28, 96

Patent  
Attorney's Docket No. 027500-690

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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U.S. Patent No. 5,088,108 to ) Group Art Unit: 2603  
UDDENFELDT et al. ) Examiner: B. Safourek  
Serial No. 08/136,760 )  
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**SUPPLEMENTAL DECLARATION IN SUPPORT OF REISSUE APPLICATION**

Honorable Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

This Declaration is supplemental to the Declarations filed on October 15, 1993 and on February 8, 1996.

We, Jan E. Uddenfeldt and Alex K. Raith, hereby supplementally declare as follows:

- (1) We are citizens of Sweden, having a post office address of c/o Telefonaktiebolaget L M Ericsson, S-126 25, Stockholm, Sweden.
- (2) We believe that we are the original, first inventors of the invention described and claimed in the United States Patent No. 5,088,108 and in the specification and the claims of the Reissue Application filed and proposed amendments made thereto.

(3) We have reviewed and understand the contents of the specification and the claims of the Reissue Application and proposed amendments made thereto.

(4) We hereby claim the benefit of foreign priority under 35 U.S.C. § 119 with respect to Swedish Patent Application No. 8800698, filed on February 29, 1988.

(5) We acknowledge the duty to disclose information that we are aware of which is material to the examination of this Reissue Application in accordance with 37 C.F.R. § 1.56(a).

(6) We verily believe U.S. Patent No. 5,088,108 to be partially inoperative by reason of our having claimed less than we had the right to claim in said Letters Patent. The specific inoperability of the patent is discussed below in more detail relative to the newly added and amended claims which broaden the scope of protection for the present invention.

(7) Claim 10 has been amended, at lines 7, 10, 11 and 17, to provide proper antecedence by consistently referring to --modulated-- or --modulating-- rather than "encoded" or "encoding", respectively. This inconsistency was discovered by Applicants' counsel upon a more intensive study of claim 10 in response to the Official Action dated 6/13/96 and was apparently caused by an oversight by the individuals prosecuting the application originally.

(8) Claim 13 has been amended, at lines 5, 8, 9 and 13, to provide proper antecedence by consistently referring to --modulated--, --modulating--, or --modulation--, rather than "encoded" or "encoding". This inconsistency was discovered by Applicants'

representatives upon a more intensive study of claim 13 in response to the Official Action dated 6/13/96 and was apparently caused by an oversight by Applicants' counsel.

(9) Claim 14 has been amended, at line 11, to provide proper antecedence by consistently referring to --modulating-- rather than "encoding". This inconsistency was discovered by Applicants' representatives upon a more intensive study of claim 14 in response to the Official Action dated 6/13/96 and was apparently caused by an oversight by Applicants' counsel.

(10) New claim 21 is a dependent claim which further describes a feature set forth in claim 1. Claim 21 recites that the reconstructing means of claim 1 includes an adaptive equalizer. A claim specifying an exemplary "means for reconstructing" in claim 1 was not presented in the original application and, as a result, it is believed that the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "an adaptive equalizer" was not specifically claimed in the original patent, as a dependent claim, or otherwise, although clearly supported in the patent specification at, for example, column 2, lines 56 through 61. Instead, claim 1 in the original patent only specified "means for reconstructing". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was an error because it could be argued that means-plus-function language of the original claim 1 could lead to unduly narrow interpretation of the scope of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of the

individuals who originally prosecuted the application to appreciate the full scope of the invention.

(11) New claim 22 is a dependent claim which further describes a feature set forth in claim 10. Claim 22 recites that the reconstructing means of claim 10 includes an adaptive equalizer. A claim specifying a "means for reconstructing" in claim 10 was not presented in the original application and, thus, it is believed that the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "an adaptive equalizer" was not specifically claimed in the original patent, as a dependent claim, or otherwise, although clearly supported in the patent specification at, for example, column 2, lines 56 through 61. Instead, claim 10 in the original patent only specified "means for reconstructing". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was in error because it could be argued that the means-plus-function language of claim 10 could lead to unduly narrow interpretation of the scope of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(12) New claim 23 is a dependent claim which further describes a feature set forth in claim 13. Claim 23 recites that the "means for reconstructing" of claim 13 includes an adaptive equalizer. A claim specifying a "means for reconstructing" in claim 13 has not, as yet, been presented and, thus, it is believed that the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "an adaptive

"equalizer" has not been specifically claimed, as a means for reconstructing, or otherwise, although clearly supported in the patent specification at, for example, column 2, lines 56 through 61. Applicants' counsel determined that claiming the reconstructing element only by use of "means for" language was in error because it could be argued that the means-plus-function language of claim 13 could lead to unduly narrow interpretation of the scope of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of Applicants' counsel to appreciate the full scope of the invention.

(13) New claim 24 is a dependent claim which further describes a feature set forth in claim 14. Claim 24 recites that the "means for reconstructing" of claim 14 includes an adaptive equalizer. A claim specifying a "means for reconstructing" in claim 14 has not, as yet, been presented and, thus, it is believed that the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "an adaptive equalizer" has not been specifically claimed, as a dependent claim, or otherwise, although clearly supported in the patent specification at, for example, column 2, lines 56 through 61. Applicants' counsel determined that claiming the reconstructing element only by use of "means for" language was in error because it could be argued that the means-plus-function language of claim 13 could lead to unduly narrow interpretation of the scope of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure Applicants' counsel appreciate the full scope of the invention..

(14) New claim 25 is a dependent claim which further describe features set forth in claim 18. Claim 25 recites that the "means for reconstructing" of claim 18 is an adaptive equalizer. A claim specifying a "means for reconstructing" in claim 18 has not, as yet, been presented and, thus, it is believed that the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "an adaptive equalizer" has not been specifically claimed, as a dependent claim, or otherwise, although clearly supported in the patent specification at, for example, column 2, lines 56 through 61. Applicants' counsel determined that claiming the reconstructing element only by use of "means for" language was in error because it could be argued that the means-plus-function language of claim 18 could lead to unduly narrow interpretation of the scope of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of Applicants' counsel to appreciate the full scope of the invention.

(15) New independent claim 26 is substantially similar to original claim 10 and recites a cellular mobile radio system for communicating message information within a geographic area that is divided into communication cells. The cellular mobile radio system includes a plurality of base stations associated with the cells, at least one of which cells has at least two base stations associated therewith which are located a distance from one another to transmit respective radio signals into the cell. The signals are digitally modulated with substantially the same message information and are transmitted at the same frequency and substantially simultaneously with one another into the cell. Each

base station is defined as including a transmitter that digitally modulates the radio signals with message information, wherein the modulating is carried out with modulation time intervals which are within a time interval related to the time required for radio signals to propagate a distance corresponding to the greatest transmitting distance between the two base stations associated with the cell. Each of a plurality of mobile stations also is defined as including a receiver that reconstructs the digital modulating of plural corresponding radio signals respectively received over the same frequency range during a reception time interval from the two base stations associated the cell, which reception time interval is at least as long as the time required for radio signals to propagate a distance corresponding to the greatest transmitting distance between the two base stations associated with the cell.

(16) Claim 26 has been presented to correct the error that a claim of its scope, which is devoid of means-plus-function language, was not presented in the original application. As a result, the assignee and inventors had claimed less than they had the right to claim in view of the uncertainty involved in the interpretation of means-plus-function claim language. Furthermore, the recitation of "a transmitter that digitally modulates" was not specifically claimed in the original patent, although it is clearly supported in the patent specification at, for example, column 4, lines 21 through 30. In addition, the recitation of "a receiver that reconstructs the digital modulation" was not specifically claimed in the original patent or otherwise, even though it finds clear support in the patent specification at, for example, column 9, lines 21 through 26. Instead, claim 10 in the original patent, which is analogous to claim 26, only specified "means for

digitally modulating" and "means for reconstructing". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was in error because it could be argued that the means-plus-function language of the independent claim of the original application could unduly constrain interpretation of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(17) New claim 27 is a dependent claim which further describe features set forth in claim 26. Claim 27 is analogous to claim 11 and recites that the "time interval is a few times greater than said propagation time". This description of the modulation time interval was not recited in the original patent claims. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993, and during a review of the patent claims by Applicants' counsel upon a more intense study of the claims in response to the Office Action of June 13, 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(18) New claim 28 is analogous to claim 12 and recites that the "at least two base stations associated with a cell are both located within said at least one cell". None of the original patent claims, specified the location of the at least two base stations in this manner. Accordingly, this claim is presented to correct the error that a claim of this scope was not, as yet, presented and, as a result, the assignee and inventors claimed less

than they had the right to claim. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993, and during a review of the patent claims by Applicants' counsel upon a more intensive study of the claims in response to the Office Action of June 13, 1996. The error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(19) New independent claim 29 is substantially similar to claim 13 and recites a cellular mobile radio system for communicating message information within a geographic area that is divided into communication cells. The cellular mobile radio system includes a plurality of base stations for transmitting radio signals into a cell, which signals are digitally modulated with substantially the same message information, and transmitted at the same frequency substantially simultaneously with one another. The claim also recites that each base station includes a transmitter that digitally modulates the radio signals with message information, which modulating is carried out with modulation time intervals which are at most a few times greater than a time required for radio signals to propagate a distance corresponding to a diameter of said cell. Further defined are a plurality of mobile stations each having a receiver that reconstructs the digital modulating of plural corresponding radio signals respectively received over the same frequency during a reception time interval from the plurality of base stations, the reception time interval being at least as long as the time required for radio signals to propagate a distance corresponding to the diameter of the cell.

(20) Claim 29 has been presented to correct the error that a claim devoid of means-plus-function language was not presented in the original application. As a result, the assignee and inventors may have claimed less than they had the right to claim in view of the present legal uncertainty in the interpretation of means-plus-function claim language. Furthermore, the recitation of modulating with modulation time intervals "which are at most several times greater than a time required for audio signals to propagate a distance corresponding to a diameter of said cell" was not specifically claimed in the original patent, although it is clearly supported in the patent specification at column 10, lines 10 and 11. Instead, claims in the original patent only specified modulation time intervals "which are shorter than the time required for radio signals to propagate a distance which is as long as a greatest transmitting distance between two base station transmitters assigned to one cell within said geographic area" (claims 1 and 6) or "related to the time required for audio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with one cell in said system" (claim 10). This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993, and during a review of the pending claims by Applicants' counsel upon a more intense study of the claims in response to the Office Action of June 13, 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(21) Claim 29 also has been presented to correct the error that a claim, similar in scope to claim 13, but devoid of means-plus-function language has not, as yet, been

presented. As a result, the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of "a transmitter that digitally modulates" was not specifically claimed in the original patent, although it is clearly supported in the patent specification at, for example, column 4, lines 21 through 30. In addition, the recitation of "a receiver that reconstructs the digital modulation" was not specifically claimed in the original patent even though it finds clear support in the patent specification at, for example, column 9, lines 21 through 26. Instead, claim 13 only specified "means for digitally modulating" and "means for reconstructing". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was in error because it could be argued that the means-plus-function language of the independent claim of the original application could unduly constrain interpretation of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of Applicants' counsel to appreciate the full scope of the invention.

(22) New independent claim 30 is substantially similar to claim 14 and recites a cellular mobile radio system for communicating message information and having a plurality of cells. The cellular mobile radio system according to claim 30 includes a first base station for transmitting a first signal having message information into a cell, a second base station for transmitting a second signal having the message information into the cell, a mobile station in the cell having a receiver that receives said first and second signals, wherein the first and second signals are received with a propagation delay therebetween, and wherein both of the first and second base stations include a transmitter

that modulates the first and second signals, respectively, with the message information using a modulation time interval which is no longer than a few multiples of the propagation delay. The claim further defines that the mobile station receiver reconstructs the first and second signals during a reception time interval which is at least as long as the propagation delay.

(23) Claim 30 has been presented to correct the error that a claim of its scope has not, as yet, been presented and, as a result, the assignee and inventors claimed less than they have the right to claim. For example, the recitation of modulating the first and second signals with the message information using a modulation time interval "which is no longer than a few multiples of said propagation delay" was not specifically claimed in the original patent although it is supported in the patent specification at, for example, column 10, lines 10 and 11. Claims in the original patent specified modulation time intervals "which are shorter than the time required for radio signals to propagate a distance which is as long as a greatest transmitting distance between two base station transmitters assigned to one cell within said geographic area" (claims 1 and 6) or "related to the time required for audio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with one cell in said system" (claim 10). This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993, and during a review of the pending claims by Applicants' counsel upon a more intense study of the claims in response to the Official Action dated June 13, 1996. This error was apparently caused by

a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(24) Claim 30 also has been presented to correct the error that a claim, similar in scope to claim 14, but devoid of means-plus-function language, has not as yet been presented. Thus, the assignee and inventors might have claimed less than they had the right to claim. In particular, the recitation of "a receiver that receives" and "reconstructs", and "a transmitter that modulates" were not specifically claimed previously, although clearly supported in the patent specification at column 4, lines 21 through 30 and at column 9, lines 21 through 26, respectively. Instead, claim 14, which is analogous to claim 30, only specified "means for receiving", "means for modulating" and "means for reconstructing". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was in error because it could be argued that the means-plus-function language of the independent claim of the original application could unduly constrain construction of the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(25) Claim 31, which is analogous to claim 15, further describes features set forth in claim 30. Claim 31 recites that the time interval of claim 30 is "less than to a few times greater" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. The modulation

time interval was not originally claimed using this language. Hence, claim 31 is believed to be a broader recitation of the invention in the sense that it recites subject matter disclosed in the original specification that was not claimed in the original patent. This error was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993, and during a review of the patent claims by Applicants' counsel upon a more intense study of the claims in response to the Office Action of June 13, 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(26) Claim 32, which is analogous to claim 16, further describes features set forth in claim 30. Claim 16 recites a time interval "no longer" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. Claim 32 provides the original language of claim 10, but depending from claim 30. Hence, claim 32 further points out that claim 30 is a broader recitation of the invention than that of original claim 10. The error of not claiming the modulation time interval sufficiently broadly was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(27) Claim 33 is analogous to claim 17 and recites a time interval "a few times greater" than the radio propagation time corresponding to the transmitting distance between two base stations associated with the at least one cell. This claim provides another example of what is meant by the general phrase used in claim 30. The error of

not claiming the modulation time interval sufficiently broadly was discovered during a review of the patent claims by a member of the assignee's patent department on or about April 1993. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

(28) New independent claim 34 is substantially similar to claim 18, and recites a cellular mobile radio system for communicating message information across an area of coverage. The recited cellular mobile radio system comprises a plurality of cells, each of the plurality of cells representing a geographic division of said area of coverage; a first base station for transmitting a first signal including message information into at least one of the plurality of cells, the first base station including a transmitter that modulates a radio carrier with the message information; a second base station for transmitting a second signal, including substantially the same message information as transmitted by the first base station, into at least one of the plurality of cells, the second base station including a transmitter that modulates the radio carrier with substantially the same message information; and at least one mobile station located within at least one of the plurality of cells wherein the first and the second signals are received by the mobile station with a time shift therebetween wherein the time shift arises from a difference in a first radio propagation delay between the one mobile station and the first base station and a second propagation delay between the one mobile station and the second base station during a reception time interval, the time shift being in the range of less than to a few times greater than said difference in radio propagation delays, the one mobile station further including a receiver that recovers the message information from the first and the

second signals during a reception time interval which reception time interval is greater than the time shift.

(29) Claim 34 has been presented to correct the error that a claim of its scope has not, as yet, been presented and, as a result, the assignee and inventors claimed less than they have the right to claim. Specifically, the previously presented claims did not refer to a mobile station wherein the first and the second signals are received by the mobile station with a time shift therebetween wherein the time shift arises from a difference in a first radio propagation delay between the one mobile station and the first base station and a second propagation delay between the one mobile station and the second base station during a reception time interval, the time shift being in the range of less than to a few times greater than said difference in radio propagation delays, the one mobile station further including means for recovering the message information from the first and the second signals during a reception time interval which reception time interval is greater than the time shift, without also discussing other features, such as the modulation time interval employed by the base stations. Hence, claim 34 is believed to be broader than the previously filed claims. The original patent is also submitted to be partially inoperative for failing to include a claim of this scope. This error was discovered during a review of the patent claims by a member of the assignee's patent department after the Official Action dated August 8, 1995 and was caused by a failure of the individuals who prosecuted the original application to appreciate the full scope of the invention.

(30) Claim 34 also has been presented to correct the error that a claim, similar in scope to claim 18, but devoid of means-plus-function language has not, as yet, been presented. Thus, the assignee and inventors claimed less than they had the right to claim. In particular, the recitation of first and second base stations transmitters that modulate were not specifically claimed previously, although clearly supported in the patent specification in, for example, Figure 2. Instead, claim 18, which is analogous to claim 34, only specified a first and a second base station, each of which includes "means for modulating" and at least one mobile station that includes a "means for recovering". Applicants' counsel determined that claiming elements only by use of "means for" language in the claim was in error because it could be argued that the means-plus-function language of the claim could unduly constrain the invention under 35 U.S.C. §112, sixth paragraph. This error was discovered during a review of the patent claims during licensing negotiations in June 1996. This error was apparently caused by a failure of the individuals who originally prosecuted the application to appreciate the full scope of the invention.

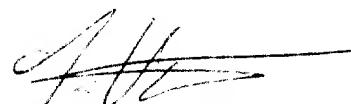
(31) New claims 35 and 36 are analogous to claims 19 and 20, respectively. Claim 35 is a dependent claim which further describes features set forth in claim 34. Claim 35 recites that the time shift is intentionally introduced in the transmission of the first signal and the second signal. Claim 36 is dependent on claim 34 and recites that the first and second base stations include a time measurement unit that shifts the transmission times of the first and the second signals. These claims are provided to correct the error that claims of this scope have not yet been presented. Consequently, the assignee and

inventors have heretofore claimed less than they have the right to. This error was discovered during a review of the patent claims by a member of the assignee's patent department after review of the Office Action dated June 13, 1996, and was caused by a failure of Applicants' representatives to appreciate the full scope of the invention.

(32) Each of the foregoing errors arose without any deceptive intention on the part of the undersigned.

(33) The undersigned declare further that all statements made herein are of our own knowledge and are true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

DATE: Oct 11, 1996



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Jan E. Uddenfeldt

DATE: \_\_\_\_\_

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Alex K. Raith